

AUTOSTART 705 (AS705S series)

PROGRAMMABLE GENERATOR CONTROLLER

The Autostart 705 provides the control features for the automatic or manual starting, load transfer and shutdown of a standby diesel generator or pump. The AS705 is a micro-processor based controller, giving full programmability of timers, trip levels and control options, with front facia LEDs for the indication of generator status and faults.


Key features


- Automatic or manual operation, selected by rotary switch (key-switch available as an option).
- 17 LED status and fault indicators, including 5 LEDs for custom programming and labelling
- RS232 communications link for engine monitoring, control and Autostart programming from local PC
- Comprehensive fault protection and alarm system:- low oil pressure, high engine temperature, overspeed, underspeed, charge fail, emergency stop, start fail, high and low battery voltage, 3 programmable fault inputs.
- 6 programmable outputs, allowing remote signalling and control of over 30 different functions.
- Pin compatibility with Autostart 710 and Keystart 9700 ranges, allowing standardisation of panel wiring.
- 96 x 96mm DIN standard, front panel mounted case

Operation

Autostart's operating mode is selected by use of its 3 position front facia switch:-

- Off/reset. Disables the engine and resets a latched fault condition.

 Automatic start-up, load transfer and return to standby in response to a mains fail or remote start condition, with full fault protection.

-  Manual start and stop of the generator, either immediately on selecting manual mode or by use of remote push button switches.

Green and amber LEDs around the switch indicate the selection of Auto and Manual modes. On keyswitch versions, the key is common to all units and may be removed in the Off and Auto positions only.

Control Outputs

The following are provided:-

- Single pole, switched +ve relay outputs for the control of engine fuel and starter motor circuits.
- Switched +ve outputs for signalling auto and manual modes, plus a -ve DC output for Off/reset.
- 6 function programmable outputs (see overleaf).

Fault Protection and Alarm System

In Auto or Manual modes, Autostart will shut down and latch out the generator on detection of low oil pressure, high engine temperature, overspeed, start fail or emergency stop faults. The Autostart may also be set up to shut down the generator on low generator frequency or speed.

3 additional inputs may be used with remote fault switches (giving a 'shutdown' or 'warning' response), or as control inputs with remote contacts or panel switches (see overleaf).

Non-latching, 'warning only' alarms are fitted for high and low battery volts, charge fail and mag. pickup fail conditions.



Product Specification

Power supply:

Operating voltage: steady state range	5 – 40 V DC continuous
crank brown-out	to 0V for <= 100 mSec
Current consumption	typically 150 mA

Inputs:

DC inputs (inputs 1 - 5, remote start)	
positive input voltage range	80% to 100% of battery +ve
negative input voltage range	-1V to +2V w.r.t. battery -ve
Generator AC input:-	
operating voltage range	90 – 300 V AC rms
frequency measurement range	0 – 99 Hz.
Magnetic pickup:-	
operating voltage range	7 – 80 V AC rms
frequency measurement range	0 to 10 kHz

Outputs:

	<i>(all ratings for resistive load)</i>
Start and fuel relays	+ ve DC (switched SPNO contact) rated 16A max. @ 24V DC
Programmable outputs 1 – 3	- ve DC (open collector transistor) rated 250mA max. @ 33 VDC
Programmable output 4	- ve DC (switched SPNO contact) rated 5A max. @ 24V DC
Programmable output 5 (default setting: Common Alarm)	+ ve DC (switched SPNO contact) rated 5A max. @ 24V DC
Programmable output 6 (default setting: Gen. contactor)	volt free SPNO contacts rated 5A max. @ 240V AC
Auto & Manual outputs	+ ve DC, 250mA max.
Off/reset output	- ve DC, 250mA max.

Physical:

Overall dimensions (W x H x D)	96 x 96 x 162 mm
Panel cut-out size	DIN standard 92 x 92 mm
Weight	approx. 650 g
Operating ambient temperature	-10 to +55 °C
Case sealing	IP22

In order to consistently bring you the highest quality, full featured products, we reserve the right to change our specifications and designs at any time.

Programmable functions

The Autostart 705 has over 40 programmable functions:-

Timers:-

Start delay; preheat, crank and crank cool (dwell) times; fault override time; warm-up delay, mains restore delay; engine cool (run on, off load) time, speed signal delay.

Inputs:-

Inputs 1 and 2 are dedicated for use with low oil pressure and high engine temperature switch sensors. Inputs 3, 4 and 5 may be programmed for a range of uses, including shutdown or warning faults, lamp test, manual restore (of mains), test off load, alarm mute, etc. The inputs may be set up to work with remote contacts which either open or close when active, with wiring to either +ve or -ve DC.

Outputs:-

6 programmable outputs, each of which may be set to give one of over 30 signalling or control 'actions', including: Preheat (4 types), Energised to Stop Fuel, Louvre Control, Generator Available, Common Alarm, Alarm (muteable), Shutdown Fault, Warning Fault, Overspeed, Start Fail, individual input faults (1 - 5), etc.

LED indicators:-

5 programmable LED indicators, each of which may be set to display extra status information (e.g. 'generator on load', 'fuel on') or specific faults which are not indicated by the dedicated LEDs (e.g. low/high/faulty battery voltage, low generator volts, magnetic pickup failure, etc.).

Next to the 5 LEDs is a windowed 'pocket' in the front label, into which a custom message label may be inserted. A sheet of typical fault and status messages is supplied with each unit.

Other System parameters:-

Crank release (by engine RPM, generator Hz. or charge alternator WL voltage), underspeed and overspeed trip levels (Hz. or RPM); maximum number of start attempts; high and low battery voltage warning levels; enable or disable loading of generator in manual mode.

Each Autostart is programmed by use of Murphy-Modex communication software running on an IBM compatible PC or lap-top. The computer is connected to the Autostart through a small interface unit and serial lead. Autostart program 'profiles' may be created, edited or saved on the computer's hard disk, up-loaded from or down-loaded to any number of Autostarts, quickly and error-free.

The software also has a real-time monitoring feature, allowing the PC to display data such as operating mode, engine running status, speed/ frequency, hours run, fault conditions, battery voltage, input/output status, etc.

When ordering, please specify:-

Switch option:-

K = keyswitch
R = rotary (knob) switch

Generator AC voltage:-

D = 230 VAC
C = 110 VAC

AS705S - -

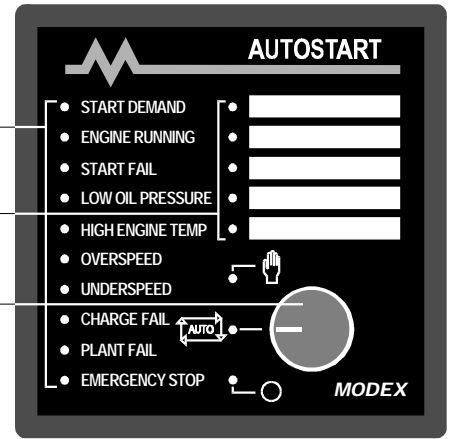
Front Facia

10 pre-set status and fault LEDs

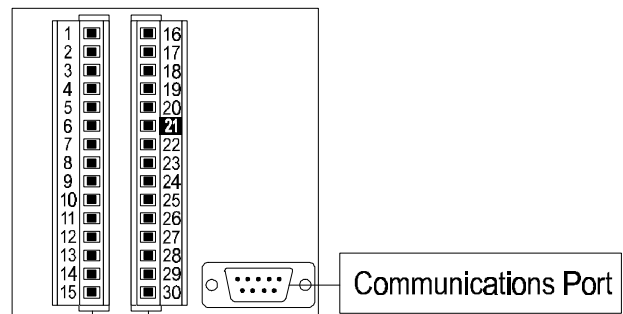
5 programmable status LEDs (2 amber, 3 red)

3 position operating mode switch:-

-  Off/reset
-  Auto
-  Manual



Rear Facia & Electrical Connection



1	- ve DC supply ← 5 - 40 VDC	16	Input 1: low oil pressure
2	Charge fail input	17	Input 2: high engine temp.
3	+ ve DC power supply	18	Input 3: programmable
4	+ ve DC (relays)/Emerg. stop	19	Input 4: programmable
5	Magnetic pickup input	20	Input 5: programmable
6	Output 1	21	Index Pin
7	Output 2 } - ve DC	22	Fuel output } + ve DC
8	A800 enable (engine running)	23	Starter output } 16A max.
9	Output 3: -ve, < 250mA	24	Output 5 (alarm): +ve, 5A max.
10	Output 4: -ve DC, 5A max.	25	NO } Output 6 (gen. contactor)
11	Remote start/mains fail input	26	CO } volt free, 5A max.
12	- No connection -	27	Man. Start } Man. Stop
13	Off output: - ve DC, < 250mA	28	
14	Manual output } + ve DC	29	Live } Generator AC
15	Auto output } 250mA max.	30	Neutral } 300 VAC max.

For a typical connection circuit, please see Autostart 710 data sheet (the Autostart 705 and 710 are pin compatible).

Accessories:-

- AS7CA** 9 way (interface) to 9 way (PC) comms lead
- AS7CB** 9 way (interface) to 25 way (PC) comms lead
- AS7CC** interface for local RS232 communications
- AS7CK** AS7xx communication and programming software



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